

RESEARCH NOTES

A RECORD OF THE ENTONISCID PARASITE,
PORTUNION CONFORMIS MUSCATINE
(CRUSTACEA: ISOPODA), INFECTING TWO
SPECIES OF *HEMIGRAPsus*

A parasite closely related to the genus *Portunion* Giard and Bonnier is mentioned by Light, *et al.* (1954) infecting *Hemigrapsus oregonensis*. Muscatine (1956) described this parasite, *Portunion conformis*, and increased the number of species in the genus to six.

During the summer of 1968, while at the Bodega Bay Marine Laboratory, I noticed a parasite infecting the hepatic tissue of *Hemigrapsus nudus*. Comparison with *P. conformis* found in *H. oregonensis* showed the parasites to be the same. I collected 122 specimens each of *H. oregonensis* and *H. nudus* from intertidal rocks 600 m south of the entrance gate to the Bodega Bay Marine Laboratory. A paved road runs along the shore above the splash zone. *H. nudus* were found closer to the road than *H. oregonensis*, but there was no distinct border between the two populations. The sex ratio in the sample of *H. nudus* was 76 male: 46 female and in *H. oregonensis* was 98 male: 24 female. Two gravid females of *H. oregonensis* were found and none of *H. nudus*.

The carapace width of all crabs was measured to determine the size distribution of the infected crabs. Female parasites were preserved in 10 per cent formalin. Male parasites were mounted on slides in CMC 10 medium. The data on infected crabs, summarized in Hubbs' diagrams (Hubbs and Perlmutter, 1942), were tested by Chi Square.

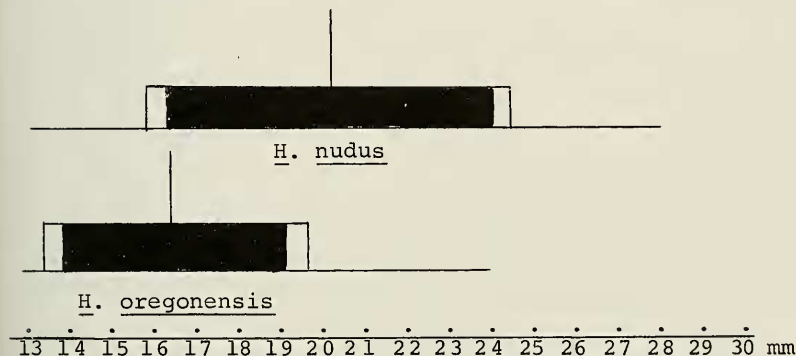


Figure 1. Carapace width of infected crabs.

Many stages of development of the female parasite were observed. The appendages of the female increase in size and complexity with increasing maturity. Two male parasites were observed on the appendages of the female parasites.

Forty-five *Portunion conformis* were found in the 244 crabs examined. Nineteen per cent of the crabs were infected with more than one parasite and these crabs averaged five mm wider than the animals with only one parasite. Table 1 shows the frequency of infection for the two species and Figure 1 compares the populations of infected animals of each species.

The two crab populations are sympatric in the area in which they were collected and therefore subject to the same invading parasites. That no significant difference exists in the rate of infection between the two host species is to be expected because of the close association of the two populations.

Infection of the crabs is probably related to the age of the animals. The smaller crabs had fewer well developed parasites, and the larger crabs frequently had more than one parasite. The parasites in crabs with multiple infections were not all at the same stage of maturity, indicating the crabs are infected at various times during their lives.

ACKNOWLEDGMENTS

I am indebted to the staff of the Bodega Bay Marine Station for assistance in locating specimens for this study. I wish to thank Dr. Henry E. Childs, Jr. for the many hours spent giving me much needed assistance.

TABLE 1
FREQUENCY OF INFECTION BY *P. conformis*

	<i>Infected</i>	<i>Per Cent Infected</i>	<i>Total Examined</i>
<i>H. nudus</i>	22	18.0	122
Males	12	15.7	76
Females	10	21.7	46
<i>H. oregonensis</i>	15	12.3	122
Males	12	12.2	98
Females	3	12.5	24

LITERATURE CITED

- HUBBS, C. L., AND A. PERLMUTTER. 1942. Biometric comparison of several samples, with particular reference to racial investigations. *Am. Natur.* 76: 582-592.
- LIGHT, S. F., *et. al.* 1954. *Intertidal Invertebrates of the Central California Coast.* Univ. Calif. Press, Berkeley, Calif. 446 p.
- MUSCATINE, L. 1956. A new entoniscid (Crustacea: Isopoda) from the Pacific Coast. *J. Wash. Acad. Sci.* 46: 122-126.

Fred M. Piltz, University of California, Bodega Bay, and University of California, Irvine

Accepted for publication September 18, 1969.